

WHAT IS CLAIMED IS:

1. A vibration motor, comprising:
- a cover plate;
- a casing coupled to said cover plate and providing an internal space with said cover
- 5 plate;
- a shaft coupled between central portions of said cover plate and said casing;
- a first printed circuit board (PCB) mounted on said cover plate;
- a magnet mounted on said cover plate and disposed around said first PCB;
- a second PCB rotatably supported by said shaft and provided with a commutator
- 10 having a plurality of segments at a bottom of said second PCB;
- an insulator mounting coils coupled to said commutator to said second PCB; and
- a pair of brushes having one end coupled to said first PCB and the other end
- extended from said one end toward said commutator at a bending line, said the other end
- having a curved bending portion extended from said the other end and having a contact line
- 15 parallel to said bending line to be line contact with said commutator.
2. The vibration motor of claim 1, with said brush comprising:
- a first extension extended from said one end along said first PCB;
- a second extension upwardly extended from said first extension at said bending line
- 20 toward said commutator, said second extension spaced-apart from said first PCB and said
- commutator; and

said curved bending portion extended from said second extension to be bent with a width line parallel to said commutator and said bending line.

3. A vibration motor, comprising:

5 a cover plate;

a casing coupled to said cover plate and providing an internal space with said cover plate;

a shaft coupled between central portions of said cover plate and said casing;

a first printed circuit board (PCB) mounted on said cover plate;

10 a magnet mounted on said cover plate and disposed around said first PCB;

a second PCB rotatably supported by said shaft and provided with a commutator having a plurality of segments at a bottom of said second PCB;

an insulator mounting coils coupled to said commutator to said second PCB; and

15 a pair of brushes having one end coupled to said first PCB and the other end extended from said one end toward said commutator at a bending line, said the other end having a portion parallel to said commutator to be line contact with said commutator.

4. The vibration motor of claim 3, with said brush comprising:

a first extension extended from said one end along said first PCB;

20 a second extension upwardly extended from said first extension at a bending line toward said commutator, said second extension spaced-apart from said first PCB and said

commutator; and

a curved bending portion extended from said second extension and bent with a width line parallel to said commutator and said bending line, said curved bending portion being line contact with said commutator.

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5. A motor, comprising:

an outer case containing a stator and a rotor, said stator fixed on said casing and having a shaft, said rotor disposed around said shaft to rotate about said shaft, said rotor having a commutator;

10 a brush having a first end fixedly electrically coupled to said stator and a second end upwardly extended toward said rotor; and

a curved bending portion formed on said second end of said brush and having a contact line parallel to said commutator to be electrically contact with said commutator.

15 6. The motor of claim 5, with said curved bending portion having a plurality of full width lines formed when said curved bending portion is cut by any plane parallel to said commutator, said full width lines being parallel to said contact lines.

20 7. The motor of claim 5, with said brush having a flat plate between said curved bending portion and said first end.

8. The motor of claim 5, with said brush having a first extension extended from said first end along said stator in a direction parallel to a center line of said shaft, a second extension upwardly extended from said first extension at a bending line disposed between said first extension and said second extension, said contact line being parallel to said bending line.

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9. The motor of claim 8, with said curved bending portion having a plurality of full width lines formed when said curved bending portion is cut by any plane parallel to said commutator, said full width lines being parallel to either one of said bending line and said contact lines.

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10. The motor of claim 8, with said second extension having a flat plate being parallel to said commutator.

11. The motor of claim 5, with said curved bending portion being a curved plate curved around said shaft while said contact line of said curved bending portion is perpendicular to said shaft.

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12. The motor of claim 5, with said curved bending portion being a curved plate curved while any line formed when a plane parallel to said commutator meets said curved bending portion is parallel to said contact line of said curved bending portion.

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13. The motor of claim 5, with said contact line of said curved bending portion formed in a radial direction of said shaft.

14. The motor of claim 5, with said curved bending portion having the same curvature as said commutator where said curved bending portion is contact with said commutator.

15. The motor of claim 5, further comprising:
said outer case having a cover plate and a casing coupled to said cover plate and
10 providing an internal space with said cover plate;
said shaft coupled between central portions of said cover plate and said casing;
a first printed circuit board (PCB) mounted on said cover plate;
a magnet mounted on said cover plate and disposed around said first PCB;
a second PCB spaced-apart from said first PCB, rotatably supported by said shaft, and
15 provided with coils and said commutator coupled to said coils at a bottom of said second PCB;
an insulator mounting said coils to said second PCB; and
said brush fixed on said first PCB and extended toward said commutator of said rotor.

16. A motor, comprising:
20 an outer case containing a stator and a rotor, said stator fixed on said casing and
having a shaft, said rotor disposed around said shaft to rotate about said shaft, said rotor

having a commutator;

a pair of brushes each having a first end fixedly electrically coupled to said stator and a second end upwardly extended toward said rotor; and

a curved bending portion formed on said second end of each of said brushes and having
5 a contact line parallel to said commutator to be electrically contact with said commutator.

17. The motor of claim 16, with said contact line being the full width of said curved bending portion in a radial direction of said shaft.

10 18. The motor of claim 16, with said brushes disposed around said shaft opposite to each other while said contact line of said curved bending portion is perpendicular to a tangential line of a curved portion of said commutator where said commutator contacts said curved bending portion.

15 19. The motor of claim 16, with said curved bending portion being a curved plate curved around said shaft while said contact line of said curved bending portion is perpendicular to said shaft.

20 20. The motor of claim 16, with said curved bending portion being a curved plate curved while any line formed when a plane parallel to said commutator meets said curved bending portion is parallel to said contact line of said curved bending portion.